

Dear

Pam 'n' Eric

# California Tech

Associated Students of the California Institute of Technology

Congratulations

the Techstaff

Volume LXVII.

Pasadena, California, Thursday, January 6, 1966

Number 12

## Huttenbeck announces art contest

Master of Student Houses Dr. Robert Huttenbeck, called a meeting Tuesday in his office of the Resident Associates and student representatives from each of the seven undergraduate Houses. At the meeting he announced the inauguration of an art contest, the purpose of which will be to tastefully decorate the board fence surrounding the Millikan Library construction site.

Huttenbeck is offering a \$50 prize to the winning House, a \$20 second prize, and a \$10 third prize. The prize money, as well as the cost of the art materials, will be absorbed by that ubiquitous Huttenbeck slush fund. Grad houses are invited to enter as well, for there are plenty of panels to go around. A blue-ribbon judging committee has been promised, too.

The idea of such a contest occurred to Huttenbeck while he was in Berkeley last year, where the art department decorates the board fences, and it gained urgency with the appearance of the simple-minded Maxwell equations (cheeseburger density, etc.) last month. At the meeting, the general reaction to the proposed contest was favorable, but final plans are not yet jelled.

## Sands featured at Berkeley AAAS meeting

The 132nd meeting of the American Association for the Advancement of Science took place at UC Berkeley on December 26-31. The "World Series of Science" featured more than 1000 papers in five days, including reports ranging in scope from birth-control pills and voluntary drunkenness in orangutans through modern methods of teaching physics and theories of interstellar communication.

### Publishes Science

The AAAS, whose membership will top 100,000 this year, is the one American society incorporating all branches of science and open to scientists and laymen alike. It also publishes the well-known journal, *Science*. This year's meeting coincided with the convention of Particle at Berkeley, a student scientific organization which may soon be seen here at Caltech, according to present plans.

Berkeley bustled with well over the anticipated attendance of 6,000. Many who attended did so unofficially, avoiding the five-dollar registration fee. Booths were set up by the Vietnam Day Committee and prices were hiked by the local innkeepers in gleeful anticipation of the convention. The focal point of the whole affair was the Student Union, which was constantly jammed with scientists, teachers and students.

(Continued on page 6)



—by McClanahan

Dr. Clark B. Millikan

## Millikan dies; services today

Dr. Clark Blanchard Millikan, professor of aeronautics and director of the Graduate Aeronautical Laboratories, died of a heart attack last Sunday morning, Jan. 2, at the Huntington Memorial Hospital. Millikan was 62 and had been a member of the Caltech faculty for almost 38 years, and had pioneered the development of multi-engined, high-altitude airplanes, and later jet propulsion and guided missiles.

Caltech's president, Dr. Lee A. DuBridge, said, "The untimely passing of Clark Millikan is a tragic loss to Caltech, to the nation, and to his friends. For thirty-seven years he served as a distinguished member of the faculty and became at an early age one of the world's great aeronautical engineers. He was a beloved teacher and gave the outstanding leadership which made the Caltech aeronautical laboratories one of the great aerospace centers of the country. He helped create the Jet Propulsion Laboratory and was for fifteen years its key guiding light. We shall miss him — but we shall not forget him."

Although there will be no funeral, a memorial service will be held this afternoon in Beckman

Auditorium at 4:00 p.m., and is open to the public.

The program will consist of a few musical numbers performed by friends of Dr. and Mrs. Millikan, and a brief tribute by William Zisch, president of Aerojet General and long time associate and friend of Millikan. This will be followed by a eulogy by Mr. Phillip Pillsbury, his Yale classmate and president of the class of '24. President DuBridge will conclude with a short tribute.

### Many, many honors

Millikan, the son of the late Robert A. Millikan, Nobel laureate and president of Caltech for 24 years, achieved many high positions and honors, the most outstanding of these being the Presidential Medal of Merit. The Medal, created by President Truman, is the highest award given by the government for civilian wartime service, and was presented to Millikan in a ceremony at Caltech on March 22, 1949, for his "exceptionally outstanding conduct" in jet propulsion development during World War II. The citation accompanying the Medal stated that Millikan, then acting Chairman of the Executive Board of JPL, "guided the Lab from infancy, and contributed immeasurably to the research and development program of the Army Air Force in the jet propulsion field."

A 1924 graduate of Yale, Millikan received his doctorate at Caltech in 1928, at which time he helped to develop a biplane designed to take off and land by itself, a forerunner of today's automatic pilots. Of the "Flying Pickle," as it was named, Millikan said, "Of course if you fly it absolutely 'no hands' it will land rather hard, but the principle is there. It will land without any attention from the pilot save cutting his throttle."

### Here since 1928

An assistant professor at Caltech in 1928, Millikan continued his previous research and development in aeronautics to become an associate professor by 1934. One of the three American scientists to tour German aircraft factories and wind tunnels in 1936, he reported, with the other two scientists, the "amazing" progress of German military preparedness. The next year, while also acting as president of the Institute of Aeronautical Sciences, he utilized wind tunnels to investigate the problems which would be encountered by aircraft flying at about 20,000 feet; the research led to the multi-propped pressurized commercial aircraft.

A full professor at Caltech by 1940, Millikan stepped up his wind-tunnel research during World War II. This work included the supervision of the design and construction of the southern California cooperative wind tunnel, the largest on the Pacific Coast. For this and other important research and administrative tasks, Millikan received, in addition to the Presidential Medal, the King's Medal of Great Britain for service in the cause of freedom.

Part of this work involved the (Continued on page 6)

## Totem polls talent

In preparation now is the first issue of *Totem*, Caltech's formerly defunct literary magazine. A dedicated staff of six is determined to demonstrate that Teckers can write.

A preliminary circular stated that the magazine is looking for contributions in areas of fiction, humor, satire, and expository material—including essays written as course requirements and interesting treatment of experimental work. "Since our purpose is to establish a forum for the campus, however," explained editor-in-chief Gary Stonum, "our content will concentrate on creative writing: humor, fiction, and poetry." Photographs and ink drawings were also requested to grace the cover and break up the monotony of the printed page.

### Mass meeting Saturday

This Saturday, January 8, To-

tem will be holding a mass meeting in 206 Dabney Hall at 1:30 p.m. Those who wish to contribute material now or later, those who wish to work on the editorial staff, or those who couldn't care less are invited to attend. The editors and Dr. Daniel Kevles, *Totem's* faculty advisor, will be explaining the purpose of and the need for a campus magazine.

The staff is optimistic that *Totem* will be well-received by the student body and hopes to have the first issue in your hands by February. Only part of its internal content has been determined, however, and contributions are greatly needed, especially short fiction. Undergrads, graduate students, and faculty are all invited to mail or bring contributions to Gary Stonum or Steve Alfin, Ruddock, or to the office below Blacker.

## Mobilgas runs

Students who are interested in participating as observers in the 1966 Mobil Economy Run breaks should register in the Industrial Associates Office, Room 7 Throop. Registration will take place for ONE WEEK ONLY—Monday, January 10, through Friday, January 14, from 8:30 a.m. to 4:30 p.m.

Students will be paid \$2.00 per hour (runs are a maximum of 5 hours), plus box lunch and transportation to the Impound. Runs will take place from early February through mid-March. Doug Holford, Fleming House, will act as Chief Observer.

## Campus tours

Interested in seeing the Caltech campus? Weekly guided tours commence at 3 p.m. Monday through Friday; at 11 a.m. Tuesday and Wednesday; and at 10:30 a.m. on Saturday. Tourists will meet in the lounge of Dabney Hall of Humanities, located on San Pasqual Street near Michigan Avenue.

Reservations are not required for small groups; arrangements for special tours may be made through the Caltech Public Relations office.

## Notices

### HOW'S YOUR MOM, QED?

*Totem's* staff will have an open meeting Saturday, January 8, at 1:30 in 206 Dabney Hall. Students (including grads) and faculty are invited to attend.

### POLITICAL AND WAR GAMES

Plans for a political exercise similar to that sponsored by the Humanities Department last year on Africa are in the making. Interested? Come to the Y lounge tomorrow at 4 p.m.

### SENATOR MORSE TO SPEAK

On January 8, Wayne Morse, US Senator from Oregon, will address Southern Californians concerning US policy in Vietnam, speaking at the Pasadena Civic Auditorium at 8:15 p.m. Tickets may be obtained in Beckman or the Caltech Y office.

### COMPUTER. CLUB. COMPUTER.

The organizational meeting of the Caltech Computer Club will be held tonight in Club Room 1 at 7:30. If interested or just plain curious, stop in and express your views on the function, structure, and activities of this type of organization.

### FOREIGN SERVICE POSITIONS

Department of State recruiting officers will be in Los Angeles from January 17 to 29, looking for qualified young people for positions in American Embassies, Consulates, and Washington offices. Inter-

(Continued on page 6)

## Letters

## a grad speaks

Editors:

I'm not particularly surprised at the results of your quoted discussion of the problems with student life. Perhaps I can offer my own answers to the questions.

Were the students (at the FSRC meeting) representative of the student body? Well, for every vocal, dissatisfied student, there is not only one silent, contented one, but also several dozen silent, discontented or apathetic ones.

What is the problem? Having recently come to the campus, my first impression of those who have been here for a while, especially undergrads, is that they are narrow in outlook and very Caltech-centered. In some aspects, this is good, or at least unavoidable: the student who is going to do much work here must concentrate on it. But as a group, the students don't seem much interested in each other, especially those outside of their own academic level.

Whose responsibility is it? That's easy. Whose responsibility is it to see that you are well-rounded and broad of outlook? Yourself, of course.

Now, obviously I'm driving at something—my view of one aspect of the problem. It is this: what do undergraduates think of graduates? What attitude does the **Tech** promote? Couldn't both groups benefit by more contact?

I have met three undergrads since I came here three months ago—I even know the name of one of them (my initiative). To be sure, the attitude is similar amongst graduates: contact, as necessary for course work. Now what should I do, amble into a Student House and introduce myself, saying, "I'm a grad"? What kind of reception should I expect, after reading the headline on page three this week: "Campus Overrun with Grads," or the banner on the **Tech** last week: "Just poke anything you see—if it bites it's a grad student."

Now maybe this isolationism is just a symptom of a deeper-lying disease. But it seems to me that even symptomatic relief would be a good thing for the campus life. I think that graduates would benefit from more contact with those from other divisions, and that undergrads may find that grads are good for more than just teaching assistants.

Unfortunately for the undergrads who may be interested in meeting grads, the grads tend to be more self-sufficient. Most of them live off-campus; many are married. But who's to say that a little encouragement wouldn't bring them around?

Why don't we try it? Maybe we could start a "take a grad to lunch this week" campaign, or even something a little less ridiculous.

John V. Levy

## Editorials

## and the editors reply

Strangely enough, we find ourselves in agreement with Mr. Levy. We would like to point out to the grad students that they, as a whole, don't have a very good image in the eyes of undergrads, and it will take some effort to overcome this. To the undergrads we would like to say that grad students are people and as such display a wide range of personalities.

We suspect that the undergrads have made most of their contacts with grads who are trying too hard to be accepted. Remember how different some frosh seem now compared to the impression they gave during rotation.

It seems like the Y might be a good group to handle any organized program to establish better contact between the two groups, and the **Tech** will certainly be behind any such action, but a prerequisite for any improvement in relations will be open mindedness on the part of both sides.

—Bob Berry, Norton Greenfeld, and Tim Hendrickson

## California Tech

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## Model U.N.

Anyone interested in becoming a member of the Caltech delegation to the Model United Nations should submit an application in writing to Fred Lamb, 118 Ruddock, by noon Sunday, Jan. 8. Caltech will represent Jordan at Stanford, April 27-30. There will be a short but very important organizational meeting in the Y Conference Room Sunday evening at 7:00 p.m.

## Airline halves student fares

American Airlines has announced the initiation of a plan which will enable many students and young people to travel by air at half the regular coach fare. The American Airlines Youth Plan is open to anyone between 12 and 22 years old.

Qualified persons will be able to purchase an identification card for three dollars. This card will entitle the holder to buy a coach ticket at half price at any ticket office or travel agency. At the airport one having such a ticket will be a stand-by and will board when seats are available.

## Doesn't apply on busy days!

Due to peak travel periods, the plan will not apply April 7, 1966; November 23, 1966; November 27, 1966; December 15-24, 1966; and January 2, 3, 4, 1967.

The plan was devised to encourage young people to see the United States. Subject to approval by the Civil Aeronautics Board, it will go into effect January 27, 1966.

## Tau Beta Pi strikes again

The Caltech chapter of Tau Beta Pi has announced the initiation of eight seniors and three juniors into the national engineering honor fraternity.

The seniors were Richard Bigelow, Gary Bornzin, Raymond Lynch, Patrick Miller, Carl Scandella, Richard Silver, Richard Stanley, and Peter Wyatt. John Eyler, Stacy Langton, and David Van Essen were the junior initiates. The December ceremonies were conducted by chapter president John R. Tucker.

The seniors were selected from the scholastic top 20 per cent of their class, the juniors from the top eighth of their class.

National president of the fraternity is Dr. Donald S. Clark, Caltech professor of physical metallurgy and director of placements.

## Lippmann and Latin America

by Meo

Because half the people in the Western Hemisphere live north of the Rio Grande, the United States exerts a tremendous influence on the politics and economics of Latin America. Recently the rise of Castro has focused our attention on curing the historical problem of sporadic revolutions followed inevitably by military dictatorships. One of the latest efforts to analyze both our role and the goals of our aid to Latin America is Walter Lippmann's political column in last week's **Newsweek**.

## Must open heart of continent

According to Lippmann, the problems of Latin America stem from the fact that the countries there are only coastal outposts of the economic influence of their northern neighbors. "There is . . . no remedy for the poverty, illiteracy, and political instability of South America unless the heart of the continent is opened up. . ." says Lippmann. All right. Let's put a superhighway running from Caracas to Rio and a nice railway net covering the Andes.

## No more bribes

Now that's accomplished, are the owners of the large estates no longer going to bribe office

holders? Will the military no longer consider itself the guardian of conservatism? Maybe the tin miners aren't going to strike for higher wages?

More fundamentally, are more people going to be able to read? Will political parties be more willing to compromise? Assuming that an opened interior allows the formation of a common market, slightly better economic conditions, and allows excess population an outlet, this does not mean Communism will appear any less attractive as a solution to chronic oppression. Cuba was one of the richest nations, per capita, in all of Latin America when Castro took over. One of the most active Communist parties on the continent is Venezuela's, by far the most wealthy.

## Pans Alliance for Progress

The Alliance for Progress is planned by Lippmann, but it is providing for basic changes in the fabric of Latin American society, changes that are not even enunciated by Lippmann. Maybe if elections are honest, if the populace is educated, and if the economic riches are not monopolized by a tiny minority, maybe then we can relax.

Whether or not we've built a bridge spanning the Amazon.

## EDITORIAL POLICY

For the information of its readers, the **Tech** presents the following summary of its editorial policy:

The first signature following an editorial indicates the author of that editorial. The following signatures, if any, indicate approval by the other editors. If all three editors sign the editorial, that editorial then represents the opinion of the **California Tech**.

In general, column writers have complete freedom as to the content of their columns. No column will be eliminated from any issue of the paper solely because of the opinions represented in that

column. Column writers represent their own opinions only and not necessarily the opinions of the **California Tech**.

The **California Tech** welcomes all letters, whether or not they agree with editorial opinion. All letters must be signed, but the author's name may be withheld from publication on request. Letters are edited (or left out) solely on the bases of space, decency, and the desire to present letter opinions in proportion to the amount of mail received. As with columns, the opinions stated in letters are not necessarily those of the **California Tech**.

## CAREER OPPORTUNITIES

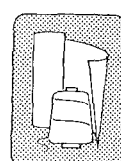
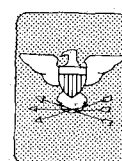
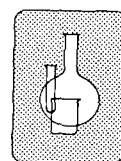
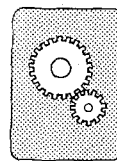
## MACHINERY, CHEMICALS, DEFENSE, FIBERS AND FILMS, RESEARCH AND DEVELOPMENT

Senior and graduate students in Engineering, Science and Business will want to talk over career opportunities at FMC Corporation. Appointments should be made today with the college placement office for individual interviews with company representatives who will be on campus—

JANUARY 13, 1966

FMC Corporation's dynamic growth and diversification offer challenging and rewarding careers in a wide range of disciplines. The important first step is to make arrangements now for an interview with a representative of FMC.

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# NSF grants for astrophysics

The National Science Foundation has granted Caltech \$357,200 to support continuing research into problems of astrophysics. The grant will finance about two years of research directed by Dr. William Fowler, professor of physics. Fowler is noted for his study of the synthesis of the chemical elements in stellar evolution.

Other Caltech faculty involved in the research include cosmologist Fred Hoyle of Caltech and Cambridge University; Dr. Gerald Wasserburg, professor of geology and geophysics; Dr. John Bahcall, assistant professor of theoretical physics; and Dr. Donald Burnett, assistant professor of nuclear geochemistry.

Calculation of stellar structure and evolution based on laboratory-determined rates of nuclear reactions is one of the six broad areas of research being supported by the grant. The rates of desired reactions are measured by bombarding light elements with protons in electrostatic accelerators to simulate the high energy of stellar heat. Fowler called this the most important contribution of nuclear physics to astronomy.

### Other areas of research

Two other areas of research deal with quasars. The first attempts to compare the calculated properties of supermassive stars to those observed in quasars. The second line of research uses the light from quasars to study the matter in intergalactic space.

Also included is research into element synthesis in stars, testing theories of nuclear processes in

stellar interiors by observing neutrinos (in a unique observatory 4500 feet down in Sunshine Mine, Kellogg, Idaho), and studying the origin of meteorites as revealed in studies of their chemical and isotopic composition.

# Indo-Pakistan Peace Corps

The World University Service, an international organization sponsored by many different religious organizations such as B'nai B'rith and the YMCA, is sponsoring a proposal to initiate an Indo-Pakistan Peace Corps. The need for such a Corps is starkly real: both countries have engaged in needless conflict, both the countries are desperately poor, and by the end of this century the population of India alone could top one billion.

### Eradicate causes

The only meaningful war that could be conducted would be one to eradicate the causes of war in the area, reviving meaningful dialogue between the two countries. The ideal method for beginning such steps is a Peace Corps, a group of concerned people to act as catalysts for the process.

Anyone interested in this idea should leave a notice in the box outside the California Tech office before January 10, for forwarding to the head of the service.

# FLICK GUIDE

**ACADEMY**  
1003 E. Colorado 796-3191  
Admission: \$1.75 w Fox student card. \$2.00 buys a card and admission.  
Friday and Saturday:  
Those Magnificent Men in Their Flying Machines — 12:30, 3:10, 5:50, 8:30.

**COLORADO**  
2586 E. Colorado 796-9704  
Admission: \$1.25 w Statewide student card. \$1.50 buys a card and admission.  
Friday:  
The Birds — 7:00, 11:20.  
Marnie — 9:15.  
Saturday:  
Birds — 2:35, 7:00, 11:30.  
Marnie — 12:15, 4:40, 9:15.

**CROWN**  
129 N. Raymond 796-3131  
Admission: \$1.25 w Statewide student card. \$1.50 buys a card and admission.  
Friday:  
Flash, the Teenage Otter — 6:30, 9:33.  
That Darn Cat — 7:24, 10:27.  
Saturday:  
Flash — 12:30, 3:33, 6:36, 9:39.  
Cat — 1:24, 4:27, 7:30, 10:30.

**ESQUIRE**  
2670 E. Colorado 793-6149  
Admission: \$1.25 for students.  
Friday:  
The Luck of Ginger Coffee — 6:30, 9:35.  
Time of Indifference — 8:10, 11:20.  
Saturday:  
Luck — 3:25, 6:30, 9:40.  
Time — 2:00, 5:05, 8:15, 11:25.

**STATE**  
770 E. Colorado 792-7139  
Admission: \$1.25 w For student card. \$1.50 buys a card and admission.  
Friday:  
Seven Women — 7:00, 10:40.  
The VIPs — 8:40.  
Saturday:  
Women — 3:19, 7:04, 10:45.  
VIPs — 1:15, 5:00, 8:45.

**UNITED ARTISTS**  
606 E. Colorado 681-6577  
Admission: \$1.50 w U. A. student card. \$2.00 buys a card and admission.  
Friday and Saturday:  
The Hallelujah Trail — 1:10, 3:55, 5:52, 8:22, 10:09.

**UPTOWN**  
2316 E. Colorado 793-4330  
Admission: \$1.25 w Uptown student card. \$1.50 buys a card and admission.  
Friday:  
For Love or Money — 7:00, 10:35.  
Never Too Late — 8:50.  
Saturday:  
Love — 1:30, 5:05, 8:50.  
Late — 3:20, 7:00, 10:35.

# Patent Office fulfills contractual obligations

The Caltech Patent Office has primary responsibility for patent and copyright matters, employee rights in inventions, and legal documents in connection with such matters. Many of these activities arise in conjunction with sponsored research at Caltech.

Caltech's emergence as a major educational and research center has resulted in the necessity for a full-scale program for identification and evaluation of new developments. This program must facilitate fulfillment of contractual obligations with sponsors as required in the patent clauses and pursuance of a program of acquiring proprietary rights on such inventions as appear to have commercial application and to have use in the advancement of technology.

### Millions involved

Sponsored research has reached a point where it involves millions of dollars annually. About twenty different sponsors (both private and governmental) have almost 250 separate agreements relating to the conduct of research programs. Usually these relations include agreement on the part of Caltech to identify and inform the sponsor of discoveries or devices which might be patentable.

Therefore Caltech requires each employee to sign an Employee Invention Agreement. It

is the duty of the Patent Officer to review all relevant publications and reports to ensure that these contractual obligations are observed.

### Faculty Committee advises

The Patent Officer is advised by the Faculty Committee on Patents in determining whether Caltech is interested in acquiring property rights in individual inventions, in which case the cost justification of the patent is analyzed. The Patent Officer consults with the members of the Faculty Patent Committee, industry representatives, faculty members, and Patent Attorneys to determine if commercial potential warrants seeking patent rights. If Caltech desires to acquire patent rights, the sponsor is informed and a patent application is filed.

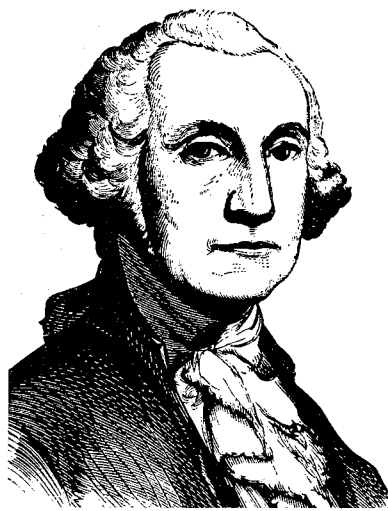
Patent properties identified and developed as described above are transferred to the non-profit California Institute Research Foundation which makes inventions available for public use. Any net financial gain is turned over to the general fund of the Institute.

# Trojan quartet to present chamber music

The Trojan String Quartet will present a program of Mozart, Bartok and Beethoven this Sunday at 8:15 p.m. in Dabney Lounge.

The quartet includes James Maurer, violin; Peter Horodysky, violin; Marta Strongin, viola; and Paul Katz, cello. It is the fourth group featured in Caltech's 1965-66 Dabney Chamber Music Concert series, now in its sixteenth season.

The Bemko-Niyya Duo will give the next concert of the series on Sunday, January 30.



Precis

Founding father of the United States of America, George Washington, was devoted to the art of brewing and serving beer. The first President of the United States constructed a brew house on his Mount Vernon estate shortly after he had established residence, and took great pride in his home-brewed beer.

Washington always saw to it that his guests had a full tankard at dinner. The General's personal recipe for the making of beer remains today as one of the best existing documents in George Washington's own handwriting.

# Marvel returns to Pasadena

Once again the Pasadena Art Museum is presenting several excellent movies in an attempt to bring some culture into the vast wasteland of Pasadena.

Three films will be shown this Friday at 8:30 p.m. The major feature will be **Ten Days That Shook the World**, a magnificent epic of the Russian Revolution directed by Sergei Eisenstein. Accompanying this will be a short called **Disorders** done by the impressive combination of Orson Welles and Jean Cocteau. Also, Captain Marvel fans will be able to see chapter 4 of their hero. All this for only \$1.50. Culture vultures arise, throw off your chains, and exert your influence!

# Other campuses

by Smitty

The Georgia Tech **Technique** notified the world of late that the faculty papers in the future will be delivered by hand. What they said was "Boys to Deliver Faculty Niques." Well, they're in Georgia and Georgia's in the South, so they can say "Boys," but we know what they mean.

Again in the **Purdue Exponent**, our eyes catch an article complaining that all Purdue men fall into two categories, both of them bad. "The first type is the 'social whizzer.'" He wants only the best, doesn't get any, and the article warns us "he ends up in the book-stalls on Friday night, reeking with after-shave, and accumulates a beer-belly by his senior year." The other is the "school-boy." "His idea of a good time on a date is a bus tour of Lafayette and discussion of the conservative sex climate at Purdue. He picks his pimples when he thinks his date isn't watching. It is obvious that no girl will ever come before his math." We must really be bad off. We only have the second category.

Georgia Tech's **Technique** complained that somebody broke into their office on a Friday and stole a thousand copies of the **Technique**. Pointing out the expense of being unable to deliver any subscription or faculty papers, the **Technique** points out that they don't "mind original but harmless practical jokes. However, future pranksters are asked to think a little bit more about the consequences of their jokes before pulling them off." Wouldn't be much of a joke, here either. More like a public service.

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**Troubadour**  
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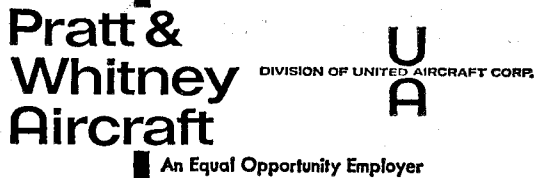
# ENGINEERING OPPORTUNITIES

for Seniors and Graduates in **MECHANICAL, AERONAUTICAL, CHEMICAL, ELECTRICAL, and METALLURGICAL ENGINEERING**  
**ENGINEERING MECHANICS APPLIED MATHEMATICS PHYSICS and ENGINEERING PHYSICS**

# CAMPUS INTERVIEWS

TUES. & WED., JAN. 11, 12

Appointments should be made in advance through your College Placement Office



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# Fleming swims to easy IH victory

What was advertised as a close duel for first place turned into a rout as Fleming ran away from the rest of the Houses in winning the Interhouse swim meet. In the finals held in the rain on Thursday, December 9, Fleming won six out of nine events, including both relays. Several fine individual performances by its members and the large number of entrants gave Ruddock high hopes for a victory, but the men could not come through in the finals. So Ruddock came in a distant second but still far ahead of the rest of the pack.

The finest individual performances were turned in by Ralph Kimbrell of Fleming and John Healy of Page. Kimbrell won both the 50 and the 100 yd. freestyle races by large margins and also anchored the record setting freestyle relay team. He, along with Davis, Coty, and Wright set the new Interhouse record of 1:38.1. Healy won the breaststroke with an impressive 32.9 time, and then helped Page take third by getting more points in the medley relay and the butterfly.

### Darbs skin it

Dabney came in fourth by only half a point. The critical race was the 50 yd. backstroke. Stu Galley of Ruddock and Jim Hunter of Dabney finished in what appeared to be a dead heat for fourth place. But somehow the watches showed that Hunter was a half second faster. But the judges, after much deliberation, decided to award a tie to those two thereby giving Dabney one-half fewer point. The rain prevented any kind of argument from developing, so the Darbs had to settle for fourth.

Blacker had the worst luck of all. They had been expected to take third on the strong performance of Lot Ensey. He had done extremely well in the preliminaries and was going to take at least one first. But he became ill at the last moment and wasn't able to compete. This decimated Blacker's forces; they were only able to come in sixth.

After all was said and done, Fleming had 82 points, Ruddock 53½, Page 25, Dabney 24½, Ricketts 22, Blacker 14, and Lloyd 13. There was a good turnout overall, with 62 men participating, as

# IH football

The term has just started, but Interhouse sports are here again. The football season will start next Monday. This is one of the most exciting of Interhouse sports, with large participation and plenty of interest on all sides.

Ruddock and Page are the favorites, both Houses fielding exceptionally offensive machines. Two rifle arms of Les Fettig and Larry Brown will respectively lead the two houses' attacks. Ruddock ends Gregg Brewer and Alan Lee, and Page ends Dan Hammons and Tom Resney are all extremely fast and tricky. The game between them will really be full of fireworks. Page has a slight advantage in that the whole team, with one exception, is back from last year. But in the end, it will probably be the defense, a great unknown, that will decide the outcome of the race.

Fleming won last year, but then lost most of their team and thereby their chances to win. But they are still good enough to take third. After that it will be a scramble for the last four places.

opposed to 57 last year.

With two sports finished, Fleming leads the Interhouse sport race with 34½ points. Page is a very close second with 33 points. The upcoming football and track & field season will give a greater indication of who will win the trophy.

Winning times			
200 yd. medley relay	Fleming	2:08.6	
50 yd. freestyle	R. Kimbrell	F 25.6	
100yd. individual medley	W. Wright	F 1:22.7	
50 yd. backstroke	W. Davis	F 33.3	
100 yd. freestyle	R. Kimbrell	F 59.6	
50 yd. breaststroke	J. Healy	P 32.9	
50 yd. butterfly	M. Garet	B 30.3	
200yd. freestyle relay	Fleming	1:38.1	
Diving	J. Bennett	D 92.50 pts.	



The Caltech sailing team heads into the sunset after a hard day of racing. Watch them come back soon; they can't escape their salt air addiction.

## Sailors cast off

Saturday and Sunday following finals week this Caltech Sailing Club raced in the PCIYRA Christmas Regatta at Newport Harbor. Before the races the PCIYRA held its annual business meeting and decided to have every school sail its own boat, rather than rotate boats as had been the procedure. Wind conditions were light and shifty both days and the course had to be changed after nearly every race. This reduced the effectiveness of pre-race planning and made it very important to stay alert to wind conditions during the race.

### Teammates and Sweethearts

Saturday Tech entered Don Radcliffe and Jim Brooks as its "A" team and Randy Cook and Dave Hammond as its "B" team. After the first day's races Tech was tied for fourth out of fourteen, due primarily to our consistency (Tech was just about the only team that never came in last or was disqualified.)

Sunday Tech took advantage of the fact that the regatta did not count toward the series score and gave substitute crews some experience. Don Dresser sailed as "B" crew in several races and Dave Hammond tried skippering one race. When the smoke place. The next regatta (at Santa Barbara) begins the PCIYRA spring series.

### WANTED

Technical typist with experience using math symbols. Send resume to P.O. Box 162, Montrose.

# Gala Beckman productions

The Institute Committee on Assemblies and Programs has scheduled an ambitious series of special events and lectures in Beckman Auditorium for the coming months.

Samuel Beckett's **Waiting for Godot** will be performed by the Regional Touring Theatre, Inc., Saturday, January 22. This acclaimed production, directed by Richard Bailey, should give those who have taken En 7 an opportunity to see what Beckett really has in mind. The Coleman Chamber Music Concert for Sunday afternoon, January 23, will feature the Prague String Quartet with a program of Bach, Mozart, and Schoenberg. Piano virtuoso Miss Rosalyn Tureck, hailed as

the "high priestess of Bach," is presenting an all-Bach performance on Friday, January 28.

These three performances have all seats reserved. Thus it is advisable to purchase tickets, especially for **Waiting for Godot** and Miss Tureck's concert, now.

In the first weeks of January, the Monday night Caltech Lecture Series—with free general admission — will feature Caltech Provost Dr. R. F. Bacher, on "Where is Caltech Going" January 10; Dr. Robert Sharp, chairman of the Division of Geological Sciences, on "When the Desert Wind Blows" January 17; and Dr. Edward Smith from JPL on "Magnetic Fields in Space" January 24.

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# SPORTS

## Basketball team wins four

The Beavers completed a two game sweep of Life College to raise their record to 4-0 before the Christmas vacation. In the first game Holford and Hsi came off the bench in the third period to break open a close contest. Caltech scored 16 straight points at one time and then coasted to an 84-74 victory. In the second game the Beavers built up an early lead and won going away 98-65. Six players scored in double figures, led by Jim Pearson's 29.

The team has been lead to its fine start in the season by the excellent play of junior forward Pearson and sophomore center Terry Bruns. They have been the big scoring punch, while also doing the rebounding. Pearson is

averaging 22 points a game; Bruns has a 19.75 per game average. Their play, together with fine performances from the many guards have made this year's basketball team a threat to any opponent.

Play has resumed for this year with a game against the UC Irvine Anteaters here on Wednesday. The next game will be on Friday night at Pomona, where the Beavers will take on the conference favorites in the SCI-AC league opener. The whole team is suffering from minor aches and pains, as well as being out of shape from the two week layoff. But they will be ready to do their best when the game comes.

games by fairly large margins. But with the additional experience of each game plus the addition of four new players, a couple of whom will make the starting lineup, has vastly improved the team. Better things should come from them, even though their opposition will be much tougher.

### BASKETBALL STATS

CALTECH				LIFE			
G	FT-A	T	LIFE	G	FT-A	T	LIFE
Yudelson	4 0-2	6	Mehl	5	9-11	19	
Potter	0 0-0	0	Hamrick	2	0-3	4	
Pearson	5 8-9	18	Schneider	3	1-2	7	
Ma	0 0-0	0	Chambers	7	2-3	16	
Bruns	8 3-3	19	Slater	3	0-1	6	
Holford	1 6-7	8	Downs	5	1-2	11	
Blair	3 1-1	7	Hicks	0	0-0	0	
Stanley	4 4-4	12	Gilchrist	3	5-8	11	
Hsi	5 2-2	12					

TOTALS 30 24-31 84 TOTALS 28 18-30 74

CALTECH				LIFE			
G	FT-A	T	LIFE	G	FT-A	T	LIFE
Yudelson	7 3-5	17	Mehl	3	2-3	8	
Potter	0 0-0	0	Von Hoff	2	1-3	5	
Pearson	10 9-11	29	Hamrick	3	0-1	6	
Ma	0 0-0	0	Canchola	2	0-0	4	
Bruns	7 2-4	16	Schneider	4	5-6	13	
Holford	7 4-7	18	Gilchrist	3	2-5	8	
Blair	0 1-4	18	Downs	3	1-5	7	
Stanley	6 1-3	13	Hicks	1	3-4	5	
Hsi	2 0-0	4	Slater	3	3-5	9	

Totals 39 20-34 98 Totals 24 17 32 65

### Next week in sports

#### VARSITY BASKETBALL

Fri. Jan. 7 8:30 p.m. Pomona at Pomona  
 Tue. Jan. 11 8:30 p.m. Occidental at Caltech

#### FROSH BASKETBALL

Fri. Jan. 7 6:30 p.m. Pomona at Pomona  
 Tue. Jan. 11 6:30 p.m. Occidental at Caltech

#### WRESTLING

Wed. Jan. 12 7:30 p.m. Biola at Caltech

### Help on the way

The team has gotten some extra support when the doctors pronounced John Tucker fit to play again. He was one of the top scorers on last year's team, and his fine shooting hand will be put to good use.

The freshmen team has not had the success of the varsity. They started the season with only a few experienced men, and therefore lost their first four

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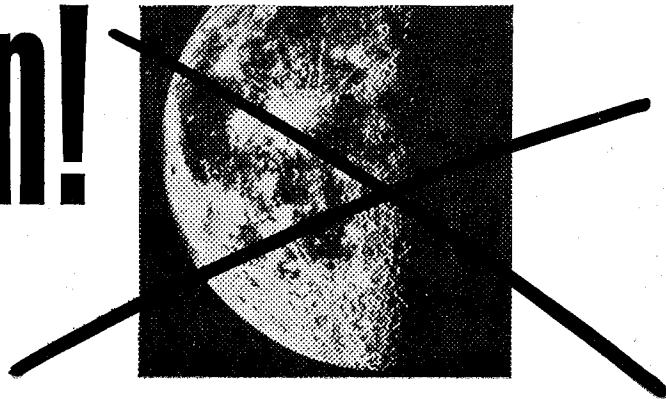
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## Drunks battle Flems after vandalizing

by Axe

During Christmas vacation, Fleming House and Caltech got an unwelcome visit from some specimens from the OUTSIDE WORLD, who were out to do as much damage as possible to the student Houses.

The trolls, very drunk and small in number, were first seen when they invaded the lounge of Fleming. Here they caused a good deal of damage, tearing up some lounge cushions and decapitating the Discobolus Trophy in the process. As the angered Flems were rounding up a posse to subdue the drunks they slipped outside and stole a motorcycle, ending up on the Athenaeum lawn near Ricketts.

### Why do Flems attract such?

They then hopped into their car, and tried to escape through the part of the Athenaeum lot which has no exit. Here they were cornered by several well-armed Flems, who were challenged to a fight by the drunk trolls. At this point, the Flems produced their weapons, heretofore hidden, and the drunks, aghast at the array of axes and iron bars, climbed meekly into their car and left.

Fortunately, the license number of the car was taken, and the latest report from the police indicate that all were in custody on a variety of charges.

The deadline for Big T senior write-ups has passed, and the senior pages are now being prepared. However, write-ups may be accepted until tomorrow evening (Friday, Jan. 7). Leave them with Dave Shirley, Blacker, or at the Big T office in Winnett.

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# Big gusts in Guggenheim

Many of the technical facilities on the Caltech campus go relatively unknown. One such item is the GALCIT 200 m.p.h. wind tunnel. (GALCIT is an acronym for Guggenheim Aeronautical Laboratory California Institute of Technology.) The tunnel occupies a good part of the five floors of the Guggenheim building, constructed when the first of the Caltech aeronautical laboratories was built in 1928.

Clark B. Millikan, then a grad student, and A. L. Klein, at the time a research fellow, designed the tunnel in the mid-1920's following the basic concepts of Dr. Theodore von Karman.

The tunnel is shaped somewhat like an enormous tire inner tube that is slightly flattened on the top and bottom. It occupies a space that is 46 feet high, 25 feet wide, and 100 feet long; the inside tunnel diameter ranges up to 20 feet.

### Motor from Submarine

A three-bladed propeller 15 feet in diameter is driven by a 750 h.p. electric motor of the type used in World War I submarines. The stream of air is directed around corners by sets of turning vanes that minimize turbulence through the test section and cool the air.

Scale models made of various materials and ranging from one-fourth to one-fortieth scale are placed in the test section. The models are instrumented so that pressures and wind velocities can be measured over different parts of their surfaces. Pitch, roll, and yaw characteristics are measured, as well as lift, drag, and cross-wind forces. Often paint or threads will be placed on a model so air flow and turbulence patterns may be actually photographed. The average test run on a model requires two weeks.

## Dr. Millikan

(Continued from page 1)

development of the WAC-Corporal rocket, jet-assisted take-off systems (JATO) along with the solid fuels needed for their practicality.

### Administrative work

Later in the 1940's and in the early 1950's Millikan was chairman of the Guided Missiles Committee of the Research and Development Board. The committee helped to coordinate the services to minimize duplication and to insure a uniform covering in guided missile research in order that no field was neglected.

In addition to these positions, Millikan held the chairmanship of the Space Systems Division Advisory Groups of the Air Force Advisory Board, a seat on the Army Ballistic Research Laboratory's Scientific Advisory Committee, membership in the Royal Aeronautical Society and the American Academy of Arts and Sciences.

He was elected to the National Academy of Sciences in 1964, while already one of the founders of the offshoot National Academy of Engineering.

### A well-rounded man

Though a hard-working and brilliant man, Millikan was no super-troll and enjoyed competition sailing in Star and Rhodes class boats. He was also an amateur pianist and served many years on the board of the Southern California Symphony. Earlier, when he was still in Yale, he ran the high hurdles.

At his previous request, his body will be cremated and the ashes will be scattered over Painted Canyon, near Mecca, Calif., where he took camping trips over a period of more than 40 years.

## AAAS meeting

(Continued from page 1)

### Feynman physics discussed

What was perhaps the high point of the entire proceedings occurred during a lecture on physics instruction at the college level, given by Professor Matthew Sands, coauthor of the Feynman texts. An objection was raised from the audience as to the teachability of Feynman to any but a Caltech student; this was vehemently countered by a teacher whose course had been using Feynman, and who praised it glowingly. What made the incident interesting was the fact that the school was a convent, and the teacher a nun. No doubt Professor Feynman will be gratified to know the extent of the opposition's submission.

Why were no ASCIT cards given out at registration?

## More notices

views will be conducted at the State Employment Service, 3223 West Sixth Street, Los Angeles, 748-3131. Hours are 8:30 to 4:30 daily.

### TOUR & PLANNING MEETING

The Y committee for planning tours to research centers will have a luncheon meeting Monday in the Y lounge.

### PEACE CORPS TEST

Peace Corps placement tests will be administered on January 8, February 12, and March 12 at 9:00 a.m. in room 6, PO building, 281 East Colorado Boulevard. Test ap-

(Continued from page 1) plicants must fill out a Peace Corps Application, available at all Post Offices.


### ARTISTS ARISE!

Students interested in participating in an informal art class this term please sign up in the Y office by Monday. For further information see Dick Hackathorn, 134 Lloyd.

### SF THRILLER

The Culberston Film Series presents the science fiction thriller "The Day the Earth Caught Fire," Friday evening at 7:30 p.m. in Culbertson, 40 cents.

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